

# (12) UK Patent Application (19) GB (11) 2 268 119 (13) A

(43) Date of A Publication 05.01.1994

(21) Application No 9212681.2

(22) Date of Filing 15.06.1992

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(51) INT CL<sup>5</sup>

B42D 15/02

(52) UK CL (Edition M)

B6A ADE A316

U1S S2105

(56) Documents Cited

GB 2244454 A EP 0394573 A EP 0277276 A

EP 0034024 A WO 88/10489 A

(58) Field of Search

UK CL (Edition K) B6A ADE

INT CL<sup>5</sup> B42D, G11C

ONLINE DATABASES: WPI

(54) Audio greeting card with record / play control.

(57) An audio greeting card for recording and replaying a message has a circuit board 2 interleaved between a face panel 1 and a base board 3. The circuit board includes a recording/reproducing chip, a memory, a microphone, a speaker, a power unit, a record control switch 7 and a play control switch 8. The circuit may also contain record contacts 5 and play contacts 6 operated by contact plates 151 and 101 respectively. The board may also contain a photoelectric element 9.

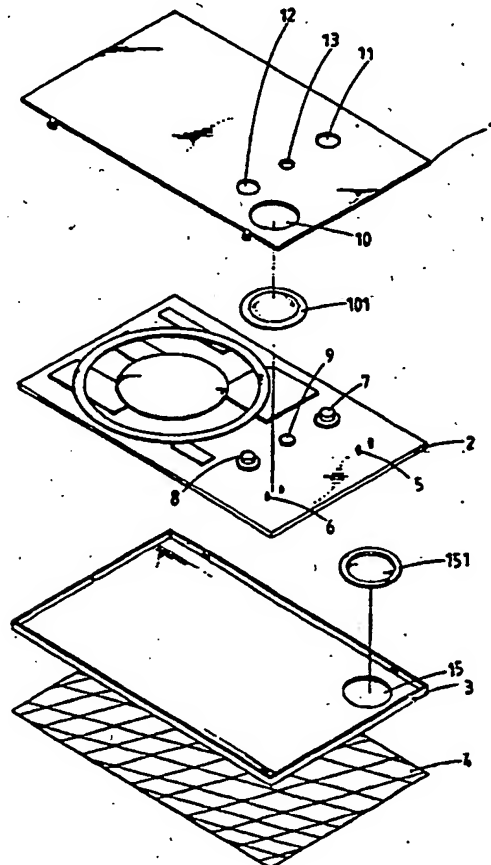


FIG.1

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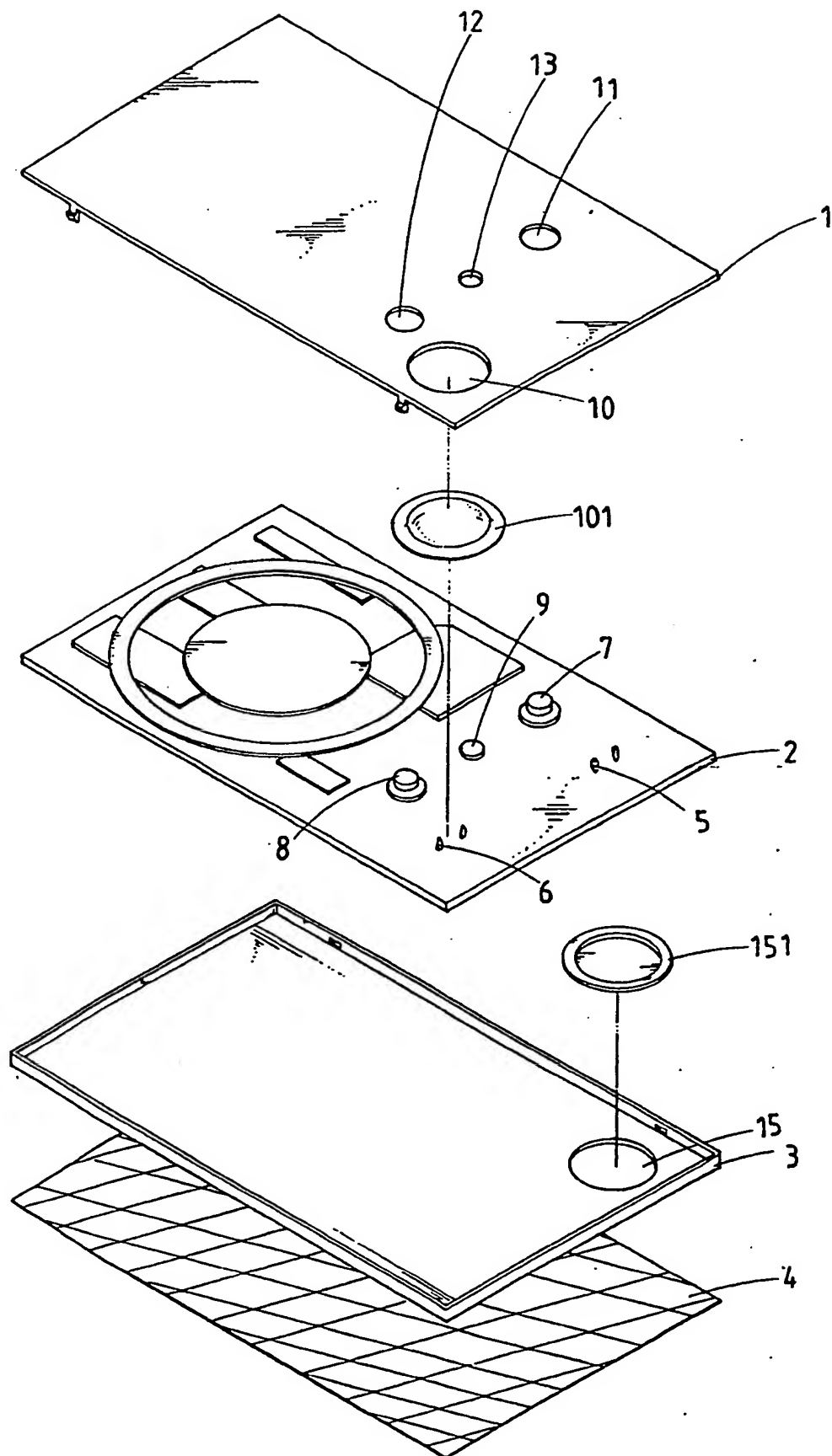


FIG.1

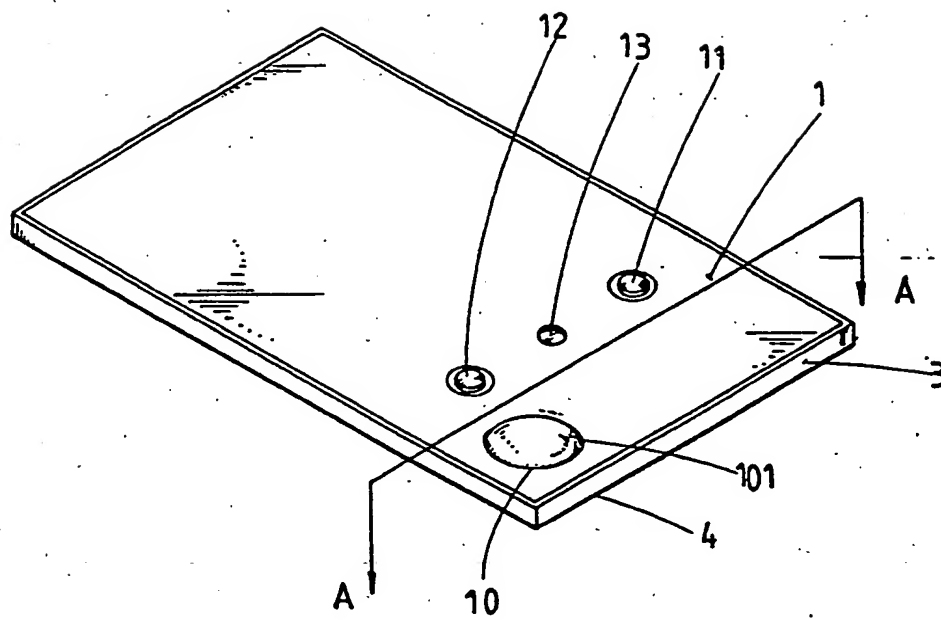


FIG. 2

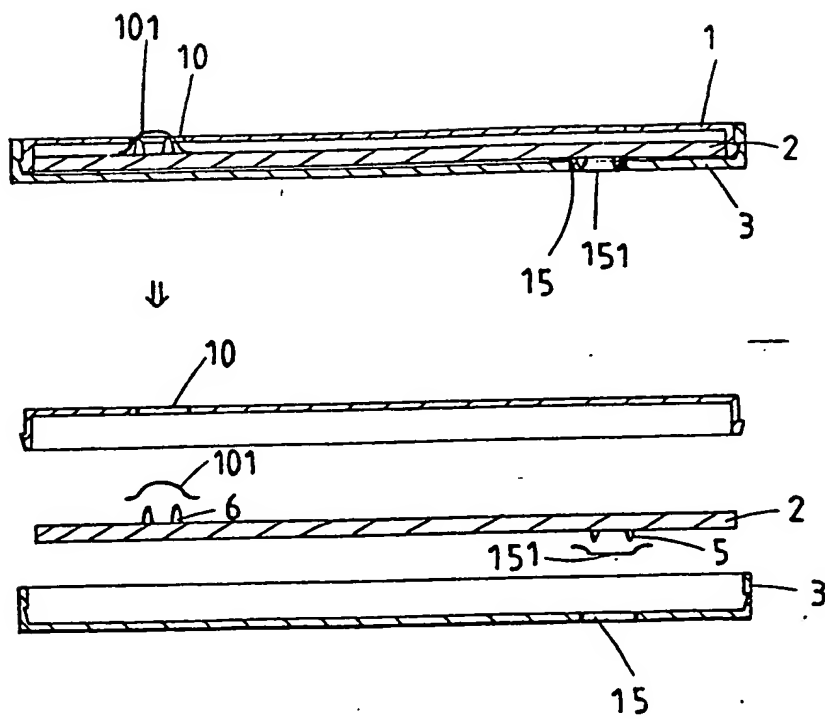


FIG.3

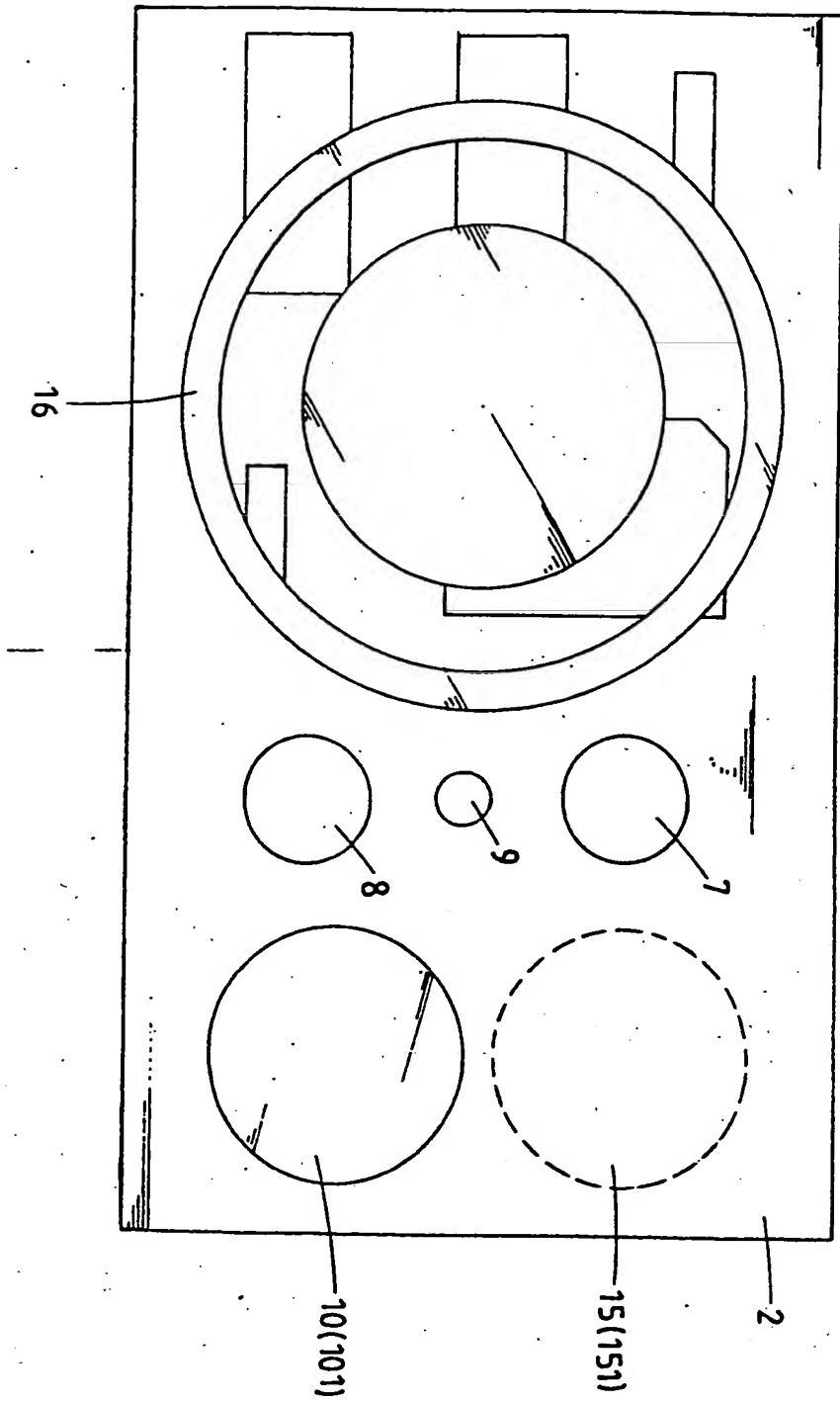


FIG.4

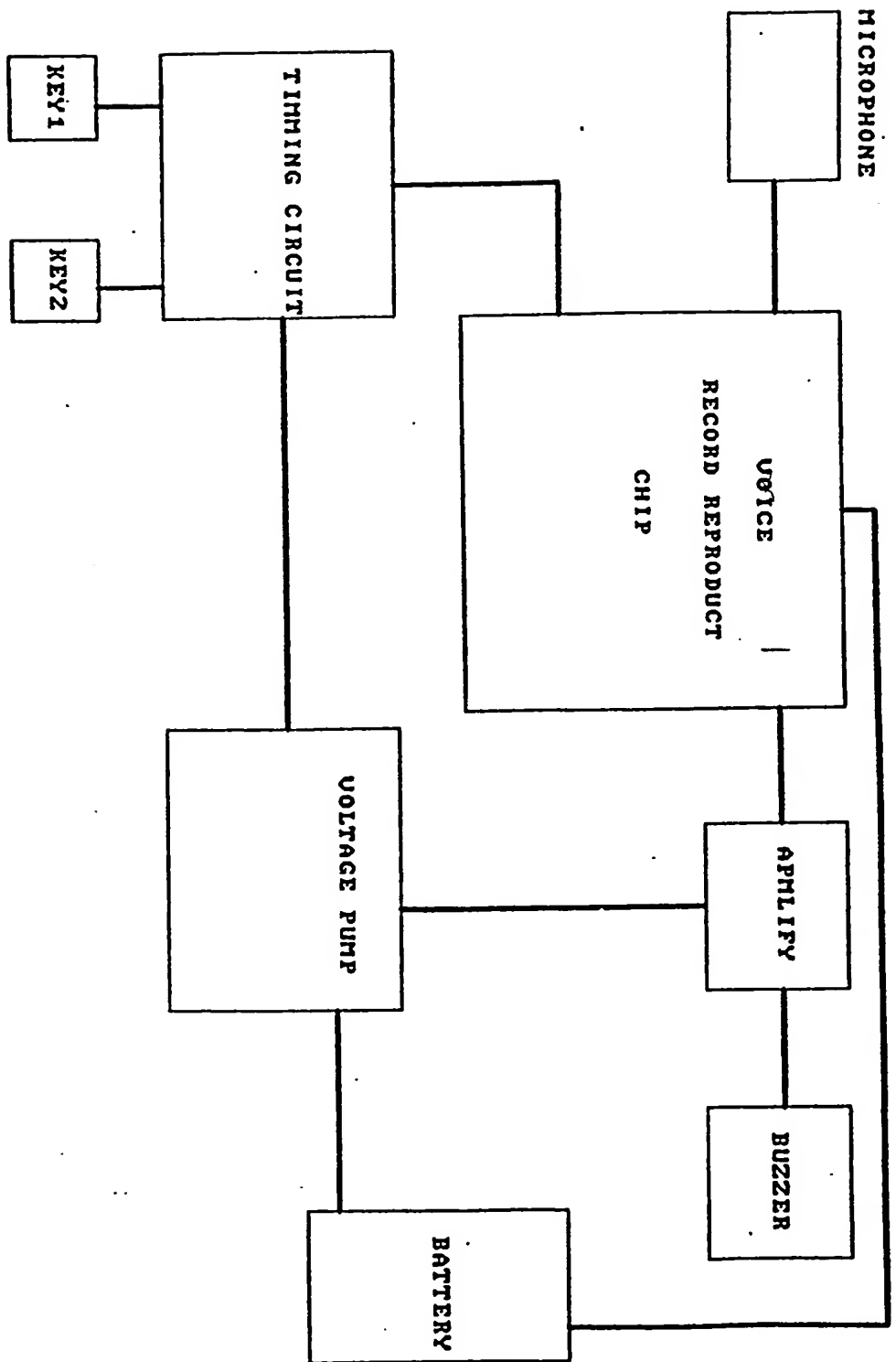


FIG.5

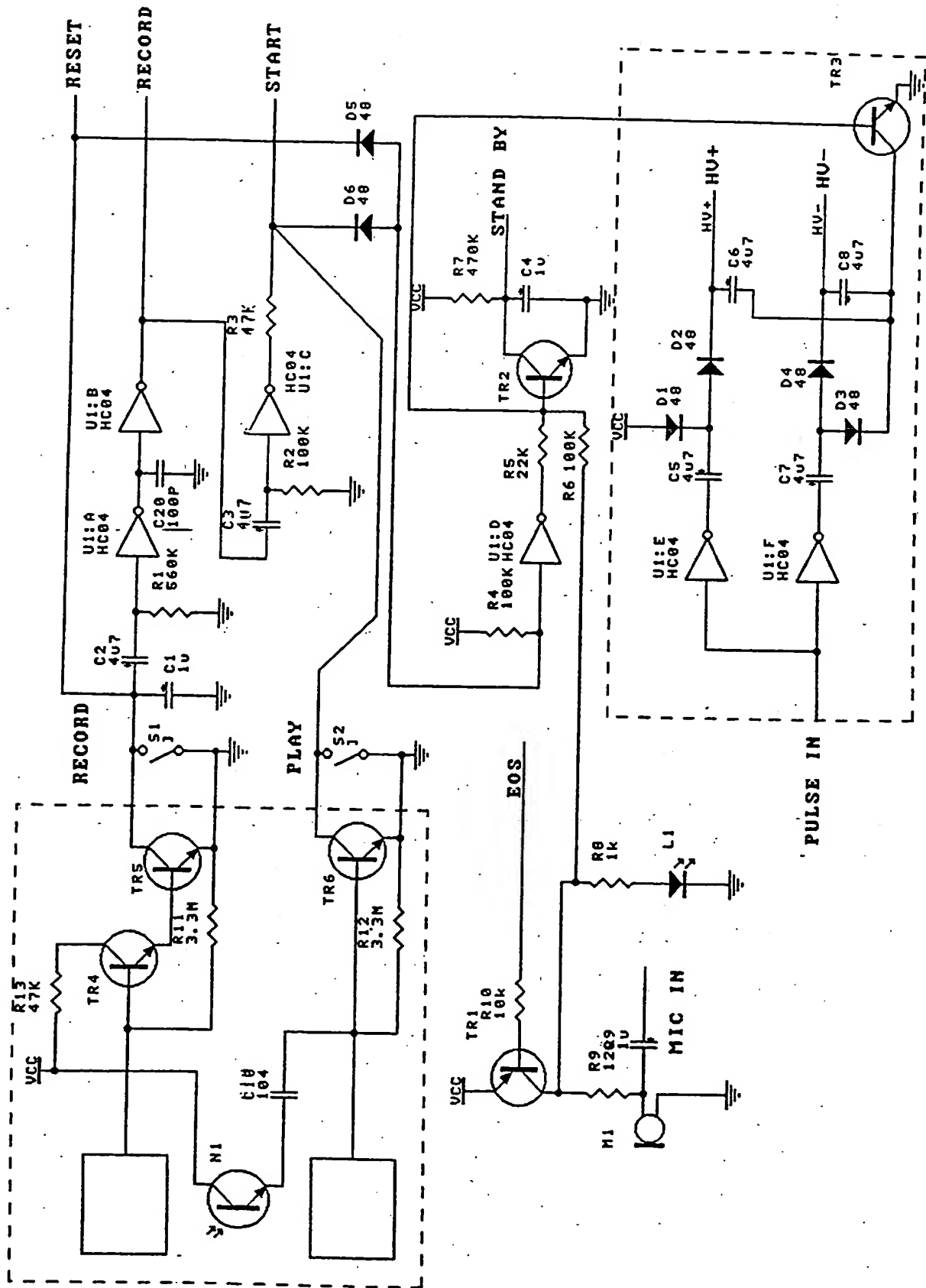


FIG. 6

RECORD



PLAY



START



STAND BY



EOS



7/7

FIG.7



MUSIC GREETING CARD WITH RECORD/PLAY CONTROL

The present invention relates to a music card and relates more particularly to a music greeting card which can record voices and then play them back.

5 A variety of music greeting cards are known and widely accepted by people to replace conventional greeting cards. According to the prior art, a music greeting card bears a specific speech or melody which is reproduced when the card is opened. The speech or melody in a music greeting card was burnt in a chip by professional people through professional equipment.  
10 Once a speech or melody has been burnt in a chip, it can not be erased.

The present invention has been accomplished under the aforesaid circumstances. According to one aspect of the present invention, a music greeting card is comprised of a circuit board having a voice recording and reproduction chip, a memory, a battery, a microphone and a buzzer controlled by a record contact plate and a play contact plate for voice recording and reproduction  
15 operations. According to another aspect of the present invention, a record key switch and a play key switch may be used to replace the record contact play  
20

and the play contact plate for voice recording or reproduction control. According to still another aspect of the present invention, a photosensitive element may be used for reproduction control.

5           The present invention will now be described by way of example only with reference to the annexed drawings, in which:

Fig. 1 is an exploded view of the preferred embodiment of the music greeting card of the present invention;  
10

Fig. 2 is an elevational view thereof;

Fig. 3 is a sectional assembly view and an exploded sectional view of the music greeting card;

Fig. 4 is a plain view in an enlarged scale showing the relative positions of the major component parts thereof;  
15

Fig. 5 is a block diagram according to the present invention;

Fig. 6 is a circuit diagram of the preferred embodiment of the music greeting card of the present invention; and  
20

Fig. 7 is an operation sequence diagram according to the present invention.

Referring to Figs 1, 2 and 3, a music

greeting card in accordance with the present invention is generally comprised of a face panel 1, a circuit board 2, a base board 3, and a double-sided adhesive tape 4. The circuit board 2 is fastened between the face panel 1 and the base board 3, having a set of electronic components respectively connected through a record contact 5, a play contact 6, a record key switch 7, a play key switch 8, and a variety of photoelectric elements 9 (including photo diodes, photo transistors, photo registers) to achieve voice recording and reproduction operations. Th record contact 5 is mounted on the circuit board 2 at the bottom while the play contact 6, the record key switch 7, the play key switch 8 and the photoelectric elements 9 are respectively mounted on the circuit board 2 at the top. Holes 10,11,12,13 are respectively made on the face panel 1 at locations corresponding to the play contact 6, the record key switch 7, the photoelectric elements 9 and the play key switch 8 respectively. A first contact plate 101 is covered over the play contact 6 below the face panel 1 and partly projects into the hole 10. When pressed, the first contact plate 101 electrically connects the play contact 6 causing the music greeting card to playback pre-recorded voices. The face panel 1 and the base board 3 may be connected

together through a hooked joint or glued joint, or by means of the process of high-frequency heat melting, with the circuit board 2 squeezed in therebetween. The base board 3 has a hole 15 at a location  
5 corresponding to the record contact 5. The hole 15 is covered with a second contact plate 151 on the inside. Therefore, pressing the second contact plate 151 causes the record contact 5 to be electrically connected so that the internal voice recording system of the music  
10 greeting card is driven to execute the process of recording. After the desired voices have been recorded by means of pressing the second contact plate 151, the base board 3 is attached with a double-sided adhesive tape 4 to prevent from false contact of the record  
15 contact 5. The opposite side of the double-sided adhesive tape 4 is then adhered to a card or gift box.

Referring to Fig. 4, the play contact 6 (the first contact plate 101) is disposed on the circuit board 2 at the top, the record contact 5 (the second  
20 contact plate 151) is disposed on the circuit board 2 at the bottom; a battery (not shown) is mounted on the circuit board 2 by the record contact 5 and the play contact 6; the record key switch 7, the play key switch 8 and the photoelectric elements 9 are disposed

at the left side relative to the battery and spaced from the record contact 5 and the play contact 6; the IC chip, the memory, the buzzer 16, the amplifier (see Fig. 5) are mounted on the circuit board 2 and disposed at the left side relative to the record key switch 7 and the play key switch 8; the buzzer 16 is disposed above the IC chip and the memory.

Referring to Figs. 5 and 6, therein illustrated are the block diagram and the circuit diagram of the present invention.

Referring to Fig. 7, the operation sequence of the present invention is outlined hereinafter.

(1) Press Record Key and release it immediately after pressing, so that the delay charging of Capacitor C1 causes Reset to produce a negative impulse;

(2) When Reset becomes Hi (high potential), Capacitor C2 is electrically charged causing Record to produce a positive impulse;

(3) When Record becomes Hi, Capacitor C3 is electrically charged causing Start to produce a negative impulse;

(4) When Reset becomes Lo (low potential), Diode D5, Resistor R5 and Transistor TR2 are electrically connected causing Stand-By to be turned

into low potential;

(5) Since Start has been in operation, End of Sample (EOS) is turned from Hi to Lo, and Transistor TR1, TR2 and Resistor R6 are electrically connected to maintain EOS at Lo; once the process of recording has been terminated, EOS is turned from Lo to Hi, causing Stand-By to be turned from Lo to Hi;

(6) The negative impulse from Play Key triggers Start to produce a negative impulse;

(7) The negative impulse from Start is sent through Diode D6, Resistor R5 and Transistor TR2 to Stand-By causing it to be turned from Hi to Lo;

(8) EOS turns from Hi to Lo, causing Stand-By to be maintained at Lo; and

(9) After reproduction, EOS is turned from Lo to Hi, causing Stand-By to be turned from Lo to Hi.

It is to be understood that the present invention is not limited to the embodiment shown by way of example without exceeding the scope of the invention.

What is claimed is:

1. A music greeting card comprising a face panel, a base board<sup>1</sup> connected to said face panel, a circuit board<sup>2</sup> covered within said face panel and said base board, said circuit board comprising a voice recording and reproducing chip, a memory, a microphone, a buzzer, a power unit, a record control switch and a play control switch, the outer shell which is formed of said face panel and said base board having openings through which said record control switch and said play control switch project out of the outer shell, said record control switch being switched on to drive a recording system, which is consisted of said microphone and said memory and said voice recording and reproducing chip, to record voices, said play control switch being switched on to drive a playback system, which is consisted of said memory and said voice recording and reproducing chip and said buzzer, to play back voices recorded in said recording system.

20 2. A music greeting card comprising a face panel fastened to a base board with a circuit board firmly retained in therebetween, said circuit board being consisted of a voice recording and reproduction chip, a memory, a microphone, a buzzer, a power unit, a

record contact and a play contact, the outer shell which is consisted of said face panel and said base board comprising a first opening covered with a first contact plate above said record contact and a second opening covered with a second contact plate above said play contact, said first and second contact plates being each covered with a layer of conductive film on the inside, said first contact plate being pressed on to electrically connect said record contact in recording voices, said second contact plate being pressed on to electrically connect said play contact in reproducing the voices having been recorded, said second contact plate being covered with an outer covering layer to prevent false contact after the pre-determined voices having been recorded.

3. The music greeting card according to claim 2, wherein said circuit board further comprises a record key switch and a ply key switch extended out of said first and second openings for recording and reproduction control respectively.

4. The music greeting card according to claim 2, wherein said record contact is mounted on said



circuit board at the bottom, and said second opening is formed on said base board and covered with a contact plate above said record contact.

5.           The music greeting card according to either  
5 of the claims 1,2,3 and 4, wherein said circuit board comprises a photosensitive element below an opening on said face panel and triggered by light to electrically connect the internal playback system causing it to play back the voices recorded in said memory.

6. A sound recording and reproducing unit comprising a face panel, a base board connected to said face panel, and electronic circuitry located between said face panel and said base board, said electronic  
5 circuitry comprising a recording and reproducing chip, a memory, a microphone, a speaker, a power unit, a record control switch and a play control switch, the outer shell of the unit being formed of said face panel and said base board and having openings through which  
10 said record control switch and said play control switch project, said record control switch being switched on to drive a recording system, which is consisted of said microphone and said memory and said recording and reproducing chip, to record sounds, said play control  
15 switch being switched on to drive a playback system which is consisted of said memory, said recording and reproducing chip and said speaker, to play back sounds recorded in said recording system.

7. A musical greeting card comprising a sound  
20 reproduction chip and a power supply therefor, and further comprising means for recording sounds onto said sound reproduction chip.

8. A sound recording and reproducing unit,  
substantially as herein described with reference to the  
25 accompanying drawings.

- 11 -

**Patents Act 1977**  
**Examine. report to the Comptroller under**  
**Section 17 (The Search Report)**

**Application number**  
 9212681.2

**Relevant Technical fields**

(i) UK Cl (Edition <sup>K</sup> ) B6A (ADE)

(ii) Int Cl (Edition <sup>5</sup> ) B42D, G11C

**Search Examiner**

H F YOUNG

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASE: WPI

**Date of Search**

27 JULY 1992

Documents considered relevant following a search in respect of claims

1 TO 8

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X Y	GB 2244454 A (OREX) see Figures 3 and 8 - note paragraph 1 of page 1	1-7
X	EP 0394573 A (NITSUKO) see Figure 1	6
X Y	EP 0277276 A (TORIO) see Figures 1 and 2	1-7
Y	EP 0034024 A (SWARZTRAUBER) see Figures 1 to 5 - note photosensitive switch 50	5
X	WO 88/10489 (SOUND) see Figures 1 and 6	6

Category	Identity of document and relevant passages - 12 -	Relevant to claim(s)

### Categories of documents

**X:** Document indicating lack of novelty or of inventive step.

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